problems, but space forbids more than a passing note on the remarkable family of the Bach musicians.

C. C. HURST.

POPULATION

Thompson, Professor Warren S., Ph.D. *Danger Spots in World Population.* New York, 1929. Knopf. Pp. xi+343+x

PROFESSOR THOMPSON believes that the principal cause of wars lies in the different rates of expansion of different populations. He has therefore surveyed the world, and tells us which countries are or will soon become over-populated, and which are under-populated. He is evidently sincerely concerned for the future peace of the world, and thinks this will best be assured by the transference of territory from those who have to those who need. He does not regard nations as responsible for determining their own optimal density of population, and appears not to recognize how provocative and inflammatory is his own concept of international rights (p. 237):

> "When there is no possible chance for birth control to become general among a people for two or three decades, or even for several generations, it is absurd to call conduct based on this fact inexcusable, while overlooking the fact that aggressive conduct on the part of a growing people is only necessary because other peoples are holding out of use land and resources which the expanding peoples need. It is an interesting kink in our notions of international ethics that aggression is condemned indiscriminately, apparently because it is aggression, while the maintenance of the *status quo,* which may work untold hardship on millions of people, seems to have general approval."

This may be compared somewhat closely to Bernhardi and other imperialistic writers in pre-war Germany.

It is assumed, of course, that, if the nations were now to make the re-adjustments of territory suggested, stability would not again be disturbed by differential growth or decrease of population. We naturally find that Japan is a "danger spot" (p. 43):

> "Since the Japanese seem destined to expand, and to expand by the acquisition of more territory, we must now ask where Japan can find the new colonies which will furnish a new outlet for its surplus population until such time as birth control will furnish permanent relief from overcrowding."

The answer is given on page 90:

> "It seems probable, then, that tropical Australia is like to prove a bone of contention in the western Pacific before many decades have passed if some steps are not taken by the Australians to make its resources available to those who need them and who can use them. Two courses to bring this about suggest themselves: (1) To turn this area over voluntarily to some people fitted to develop its agriculture and other resources in the hope of thus making an ally if trouble should ever arise regarding the retention of the temperate area; or (2) to admit the coloured labour necessary to exploit this region under the direction of Australians as a dominant landowning class."

The author recognizes vaguely that this process would not strongly appeal to British people in any part of the world, but we must put up with that (p. 288):

> "No doubt the alienation of any part of the Empire would be looked upon by many people in Great Britain as the beginning of its disintegration. It is, of course, a sign of disintegration, but it is by no means the beginning. That was made some time ago. A political body like the British Empire is an anachronism in the modern world. It cannot long endure in a world where the spread of knowledge and education are obliterating traditional race and class distinctions [compare proposal (2) for Northern

> Australia] and are thus rendering more and more difficult the exploitation of the people and the resources of a large part of the world by a small favoured class."

Under the heading of " Peoples Possessing Unused Lands " the British naturally figure prominently, and this, it would appear, for the interesting reason that our birth rate is so low (p. 292) :

> " Russia, too, apparently has great areas of unused land in Siberia and great mineral resources which have not yet been opened up. But Russia cannot be classed with Great Britain and France as a ' dog in the manger ' because the Russians are still a ' swarming ' people."

The empty lands of the United States do not, naturally enough, come into this discussion. It is mentioned that the population of Alaska is diminishing steadily, merely to show that we need no further discuss so unimportant a place. It is not mentioned that the same is true of the rural areas of the States themselves.

The book is worth reading as representing a current of American feeling which might otherwise be unnoticed in this country, but the publishers would perhaps have been wiser to leave out the word " unbiased " from their remarks on the cover.

R. A. Fisher.

PROGRESS OF SCIENCE

Dampier-Whetham, W. C. D., M.A., F.R.S. *A History of Science: and its Relations with Philosophy and Religion.* Cambridge, 1929. University Press. Pp. 514 + xxi. Price 18s.

In his *History of Science* Mr. Whetham has made an attempt at something intrinsically very difficult, nothing less than a complete and perfectly balanced account of the main features of the history of that branch of human experience which we call natural science. Doubtless he will not be the last to make this historical synthesis; but he has certainly produced a book which will be of great value to his contemporaries, taking the place, to a large extent, of Whewell's well-known work. Undeterred by the vastness of the field, he ranges from the opinions of the Pre-Socratic Ionians to the most recent cosmogonies of Jeans and Eddington, and from the earliest Greek alchemists to the hormones and vitamines of to-day.

A glance at his arrangement shows that about three-fifths of the book is devoted to the science of the nineteenth century and after, probably a wise proportion in view of the many side-tracks which students of ancient and mediæval science are liable to be lured into. Mr. Whetham keeps strictly out of such side-tracks; he pays the minimum amount of attention to biographical detail, confining himself, as a rule, to date and place of birth, and he avoids all suspicion of interest in " quaint detail." These merits, however, have their own defects, and lead to a certain dullness in the presentation of the material, making what might have been fascinating merely useful. Thus when Frontinus, the Roman engineer, is mentioned on page 59, it would have taken only a line or two to include his exquisite words, illuminating as they do the Roman character, "With these immense structures, carrying so many waters, compare if you will, the useless though famous, works of the Greeks."

Mr. Whetham's first chapter takes us from the remotest antiquity (though unduly little is said, perhaps, about ancient India and China) up to the end of the Hellenistic Age. The treatment here is very adequate, though one misses an account of Aristotle's views on causation, so important for all later science, and it is perhaps time that the doubtful legend about Alexander's army collecting specimens for Aristotle was allowed to fall into oblivion.

Again, in the discussion of Galen no mention is made of his doctrine of faculties or of his *De Usu Partium,* both so influential in later times. The next chapter, which deals with the Dark and Middle Ages, is also very interesting, but some will feel that Albertus Magnus has not been given sufficient prominence, and on page 102, where